

A New Species of Chiton from the Aleutian Islands

(Mollusca : Polyplacophora)

BY

ANTONIO J. FERREIRA¹

2060 Clarmar Way, San Jose, California 95128

(1 Plate; 1 Text figure)

THE ALEUTIAN ISLANDS, extending westward some 2000 km from the Alaskan peninsula towards the peninsula of Kamchatka, are an integral part of the Aleutian Province which, variously defined (SCHENCK & KEEN, 1936; EKMANN, 1953; BRIGGS, 1974), stands between the eastern Pacific Cold Temperate Region to the south, and the icy waters of the Arctic Region to the north. For mollusks in general, the endemism of the Aleutian Province has been estimated at 24% (VALENTINE, 1966). Still, its chiton fauna is poorly known. This paper reports on a new species of chiton which appears to be endemic to the Aleutian Islands.

POLYPLACOPHORA de Blainville, 1816

NEOLORICATA Bergenhayn, 1955

ISCHNOCHITONINAE Bergenhayn, 1930

ISCHNOCHITONIDAE Dall, 1889

Ischnochiton Gray, 1847

Ischnochiton allyni Ferreira, spec. nov.

(Figures 1 to 4 and 5)

Diagnosis: Chiton of moderate size, uniform rusty-brown color. End valves with 15 - 20 radial ribs, often bifurcated, crowned by minute tubercles, and separated by well defined sulci. Lateral areas with 3 - 4 similar ribs. Central areas uniformly pitted for a net-like effect. Girdle covered with imbricating, relatively large, mammilated, faintly striated scales. Articulamentum of intermediate valves with 2 - 3 slits per side.

Description - Holotype: Oval shaped with quasi parallel sides, circular in front and in back. Dried, but fully extended, it measures (including the girdle) 19mm in length, 12mm in width, and 4.5mm in height. Width/length ratio = 0.63. Jugal angle about 103°. The tegmentum and girdle are a uniform rusty-brown color. The tegmentum is microgranulose throughout. The anterior valve displays some 22 radial ribs, most of which bifurcate resulting in about 36 ribs when counted at the valve's periphery. The radial ribs tend to have a distinct triangular outline in cross-section; they are crested by a row of minute tubercles (about 0.05mm in diameter), often poorly defined, close together, sometimes fused. The radial ribs are neatly separated by a sulcus. The posterior valve has a well defined but not prominent mucro; the post mucro area is plane and shows about 16 radial ribs in every respect similar to those in the anterior valve. The central areas of the intermediate valves are grossly but uniformly pitted resulting in a net-like appearance. The lateral areas are well defined and moderately raised; they exhibit 3 - 4 radial ribs with the same characteristics of those in the end valves. Girdle not banded, about 2mm in width, covered with loosely imbricated scales. The girdle scales (Figures 3, 4) are strongly convex, weakly striated, often reaching 250µm in length; their dorsal edge tends to point inwardly, and is usually crowned by a striated mammillus. Towards the periphery, the girdle scales are much smaller, and columnar in shape.

The gills, about 28 on each side, extend from about 2mm in front of the anus to about 3mm behind the anterior edge of the foot. The articulamentum is white. Insertion teeth are sharp and straight edged. The slit formula is 16-2/3-14. Eaves are small and subspongy. The sutural laminae are sharp and semi-oval continuing without notch or demarcation with a thin sinusal lamina which protrudes 0.1 - 0.2mm in front of the anterior edge of the tegmentum. The sinus is well developed but moder-

¹ Research Associate, Department of Invertebrate Zoology, California Academy of Sciences, San Francisco, CA 94118

ate in size. The radula (Figure 5) is 9.5 mm long and contains about 45 rows of teeth. The uncinat plate (major lateral) is unicuspid.

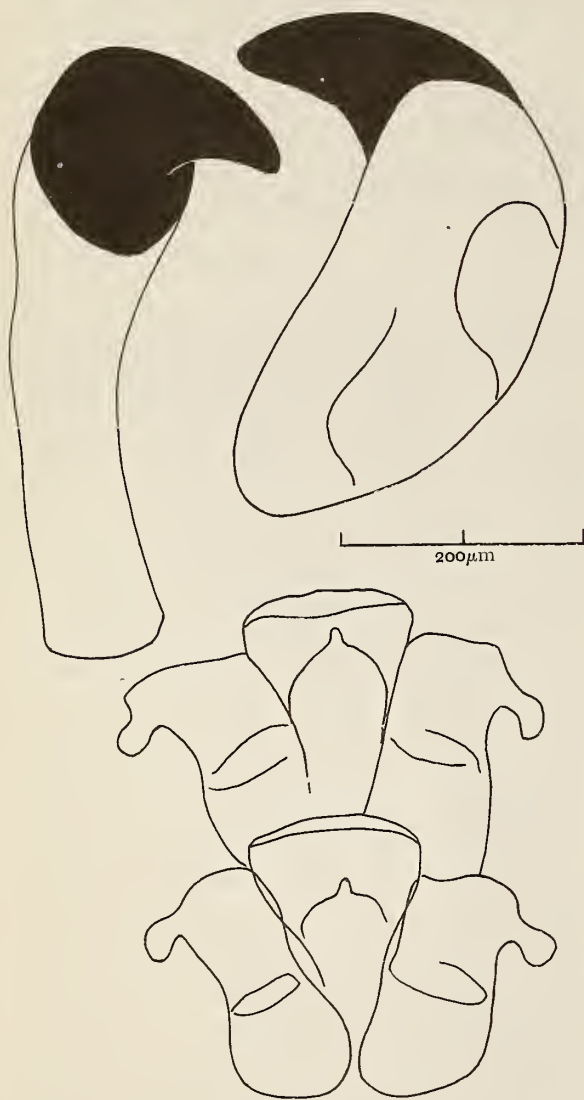


Figure 5

Ischnochiton allyni Ferreira, spec. nov.
Holotype - radular teeth [Camera lucida drawing]

Paratypes: 23 mm, and 36 mm in length; same color as holotype.

Type Locality: North side of Constantine Harbor, Amchitka Island (51°30'N; 179°00'W), Aleutian Islands, Alaska. The 3 specimens, here designated as holotypes and paratypes, were collected by L. Barr *et al.*, with SCUBA, on a rock substrate, in 17-27 m (50-80 feet) of water on June 12, 1973; they were made available through the generosity of J. M. Barnes, Brigham Young University, Provo, Utah.

Type Material: The holotype, partly disarticulated (CASIZ Type Series No. 683; Type Slide No. 496), and the two paratypes (CASIZ, Type Series Nos. 684 & 685), together with color slides of the specimens (CASIZ, Color Slides Series, Nos. 2949-2951) are deposited in the California Academy of Sciences, San Francisco.

Remarks: The question of a subgeneric assignment for *Ischnochiton allyni* cannot be readily decided at this time. Similarities in tegmental sculpture, girdle scales and articulamentum suggest that *I. allyni* may have a not too remote kinship with *I. trifidus* (Carpenter, 1864) from the adjacent eastern Pacific Cold Temperate Region, and for which BERRY (1919) erected the monotypic subgenus *Tripoplax*. However, *I. allyni* with its *Lepidozona*-like features and radsoid valves seems to have an even greater affinity with a group of species described from the Sea of Okhotsk and the northern part of the Sea of Japan, in the genera *Gurjanovillia* and *Lepidozona*. The close examination of specimens graciously donated by Dr. B. Sirenko, University of Leningrad, U. S. S. R., suggests a phylogentic tie between *I. allyni* and *Gurjanovillia albrechti* (Schrenck, 1867), *G. lindberghi* Jakovleva, 1952, *L. multigranosa* Sirenko, 1975, *L. thielei* Sirenko, 1975, and *L. ima* Sirenko, 1975.

The synonymization of the genus *Gurjanovillia* Jakovleva, 1952 (Type species: *Chiton albrechti* Schrenck, 1867, by OD) under *Lepidozona* Pilsbry, 1892 (Type species: *Chiton mertensii* Millendorff, 1847, by OD), as previously proposed (SMITH, 1960; FERREIRA, 1974; SIRENKO, 1975) is incorrect: The species listed by Jakovleva in the genus *Gurjanovillia* are radsoid, i.e., 2-slitted, and therefore not members of the genus *Lepidozona*.

Explanation of Figures 1 to 4

Figure 1: *Ischnochiton allyni* Ferreira, spec. nov. Paratype; length 36 mm [Allyn G. Smith, photograph]

Figure 2: *Ischnochiton allyni* Ferreira, spec. nov. Paratype, close-up of valves i and ii [Allyn G. Smith, photograph]

Figure 3: *Ischnochiton allyni* Ferreira, spec. nov. Holotype - girdle scales [SEM micrograph by Hans Bertsch] approx. $\times 62$

Figure 4: *Ischnochiton allyni* Ferreira, spec. nov. Holotype - girdle scales [SEM micrograph by Hans Bertsch] approx. $\times 186$



Figure 1

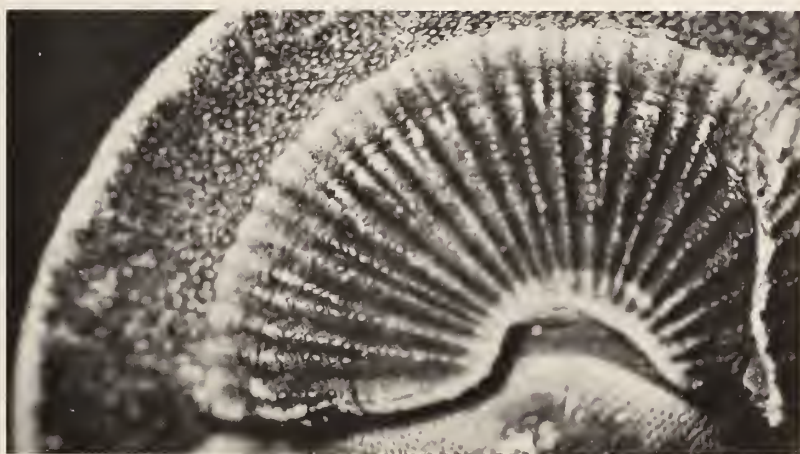


Figure 2



Figure 3

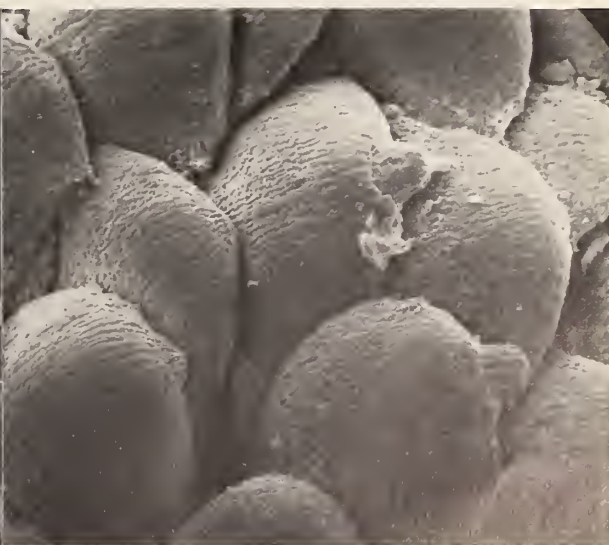


Figure 4